

DICK-PEDDIE, WILLIAM A. 1993. **New Mexico Vegetation, Past, Present, Future.** (ISBN 0-8263-1361-2, hbk) University of New Mexico Press, Albuquerque. \$ 244 pp. + map and color photographs.

New Mexico has a richly diverse vegetation that is in a continual state of flux due to both human influences and long-term climatic changes. This theme pervades *New Mexico Vegetation* in which Dr. Dick-Peddie summarizes and synthesizes data from his long career at the University of New Mexico. Not only does this volume provide a detailed account of the present vegetation of New Mexico, but also gives an overview of the physical factors, vegetational history, and future concerns about rare species and fragmented natural areas.

The book is divided into twelve chapters which fall into three natural sets. Chapters One to Four, plus the Introduction, provide the reader with a general background on the vegetation. In particular, immediately preceding Chapter One there are a county map and 29 handsome, colored plates that depict the vegetation types and phenomena discussed. Chapter One, covering the physical environment, includes maps of the physiographic regions, land/water areas in geologic time, average frost-free days, average annual precipitation, and soils. Chapter Two provides a reconstruction of past vegetation since the Tertiary. The discussion and documentation of desertification over the last 100 years is important. Chapter Three presents general concepts of vegetation patterns in relation to the physical environment and to interspecies dynamics. Chapter Four discusses methods of classifying vegetation, conventions used in this book, and differences with other, earlier works.

The detailed descriptions of the vegetation types and their constituent habitat types (or vegetation units) in Chapters Five through Ten, make up the second section, the bulk of the book. Each chapter contains tables summarizing the hierarchy of these vegetation and habitat types and the major plant species in each vegetation type. Dick-Peddie recognizes the following vegetation types in New Mexico: Alpine Tundra, Subalpine Coniferous Forest, Upper Montane Coniferous (mixed conifer) Forest, Lower Montane Coniferous Forest, Aspen Disturbance Forest, Coniferous Woodland, Mixed Woodland, Savanna (extensive woodland-grassland ecotone), Montane Grassland, Plains-Mesa Grassland, Desert Grassland, Montane Scrub, Plains-Mesa Scrub, Great Basin Desert Scrub, Chihuahuan Desert Scrub, Successional Montane Scrub, and several riparian vegetation types. Chapter Ten discusses special types including aquatic, lava-flow, and gypsophilic vegetation. W.H. Moir contributed the chapter on alpine tundra and montane forests.

The final chapters shift the focus from the description of present vegetation types to concerns of and factors effecting the future of New Mexico vegetation. Richard Spellenberg contributed a lengthy discussion (Chapter 11) on species of special concern, i.e., endemics of limited distribution, and species in decline. Besides reviewing the problems, needs, and possible solutions, he gives detailed accounts of each of the types of threats and the plant species involved. In Chapter 12, Dick-Peddie advances a view of the future for the vegetation as a whole. In particular, he advocates a series of natural areas and a means to secure them.

When I first saw this book, I knew that it would be invaluable as a lecture and student reference for a field botany course in New Mexico that I am developing. Even so, I was somewhat disappointed when the book was evaluated against the rigorous demands that I placed upon it. I was happily composing charts of vegetation on a grid of mean annual rainfall vs. mean annual temperature, which can be gleaned from the descriptions in Chapter Five, when I discovered that there are no parallel presentations of that information in the remaining descriptions. Furthermore, an introductory map showing physical features such

as mountain ranges, rivers, etc. would help one to quickly pinpoint examples given in the text.

Even with these shortcomings, the volume is sure to be of use to anyone interested in the biology and/or geography of the Southwest.—*Roger W. Sanders, Botanical Research Institute of Texas.*